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Undead Pedagogy: How a Zombie-simulation can Contribute to Teaching International Relations¹

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Abstract

A global zombie outbreak constitutes a hypothetical event in world politics that could likely lead to the collapse of civilization. At the same time, the very threat of such a global catastrophe offers a unique experimental terrain on which to investigate various possible changes and developments in human interaction in social, economic and political processes. In this article, we discuss our experience with using a global zombie outbreak-based simulation in International Relations teaching and our attempt at measuring the learning outcomes, taking our point of departure in the existing literature on active learning. Following an outline of the objectives, set-up and parameters of the simulation, we evaluate the results of the survey we have conducted amongst the student participants and discuss the learning outcomes we have discerned.

Introduction

¹ We would like to thank Joseph Bernasol for his valuable input to this article. Our colleagues in the Globalisation and Europeanisation Research Group at Roskilde University provided comments and patiently put up with our zombie obsession. Most of all, we would like to thank our students for their participation and enthusiasm in the simulations - open minds make for the tastiest brains.

In times of global economic and social crisis, soulless reanimated corpses seem to be a recurrent theme. References to zombies have become widespread in popular culture but also academia and even policy circles (Hall 2011:1-17). The zombie trope has for instance been played out widely in discussions of the global financial and economic crisis (see, for example, Harman 2009; Krugman 2010; The Economist 2009).

The starting point for a simulation exercise conducted at Roskilde University as part of an undergraduate course International Relations theory in the fall of 2012 was that zombies also constitute an interesting angle for analyses of global politics more broadly conceived. Zombies have been an object of study for social scientists for decades (see, for example, Wade 1985; for zombies as a potential subject of studies see Saideman 2011). The very emergence of zombies as cultural phenomenon seems to be related to social upheaval or historical events involving war, and appear to be linked to fundamental human fears of death or infectious diseases (Newitz 2008).

Recently there has been a remarkable surge in studies on how to explain the rise of the undead in popular culture, and how this could be employed to understand the real existing world. As Drezner points out, the interest in zombies might represent an indirect attempt to get a cognitive grip on what former US defense secretary Donald Rumsfeld referred to as “unknown unknowns” (Drezner 2011:5). Others have interpreted the current academic obsession with zombies as “reflection of the dangers of invasive alterity associated with uncontrolled spaces in the current era of globalisation” (Saunders 2012:81).

A global zombie outbreak constitutes a hypothetical event in world politics that could likely lead to the collapse of civilization (although we found that it did not) (as, for example, modelled by Munz, Hudea, Imad, and Smith 2009:133-150). At the same time, the very threat of such a global catastrophe offers a unique experimental terrain on which to investigate various possible changes and developments in human interaction in social, economic and political processes. This possibility has not been lost on educators and even public policy makers – there is now a wide range of cases in which zombies have been fruitfully engaged as teachable moment (see, for example, Hall 2011; CDC 2013; University of Florida 2013; Watson 2012). How then could zombies be integrated into teaching International Relations?

In this article, we discuss our own experience with using a global zombie outbreak-based simulation in International Relations teaching and our attempt at measuring the learning outcomes, taking our point of departure in the existing literature on active learning. After a brief section outlining the motivation for integrating a zombie-based simulation into the course curriculum, we provide an overview of the objectives and set-up of the simulation. To gauge the impact the

simulation had on students' learning and experience of International Relations, we conducted a before and after survey linked to the simulation; the results are discussed in detail in section three. The article then concludes with broader reflections on the role of the undead in teaching International Relations.

On the Use of Simulations in a Teaching Environment – “Playing” International Relations?

Simulations and games constitute an increasingly important method in teaching International Relations, and have long played a significant part in scientific research methods and the policy world. Role playing exercises such as the UN Modell Nations or EU Council simulations have become established extra-curricular activities for IR students.

With due incorporation into the overall syllabus, careful planning by the instructor and sufficient preparation by the students, thorough supervision during the simulation process as well as an intensive reflection process when the simulation has been completed, simulations can be rewarding and stimulating additions to teaching International Relations. As Asal argues, “simulations can bring material to life without sacrificing content learning” (Asal 2005:61). In particular in the area of theoretical approaches to International Relations, simulations offer a level of concrete discussion and application of these often rather abstract notions which simply cannot be achieved in standard lecture situations. As such, simulations can help students to deepen their understanding of International Relations, and grasp the fundamental differences between theoretical perspectives on the basis of their application rather than textbook bullet point. Among the various educational benefits of simulations, Taylor points towards the development of critical thinking and independent analytical skills (Taylor 2013:3). Moreover, students engaging in intensive simulation exercises go beyond the surface learning of content as they are confronted with moral dilemmas, competing arguments and solutions, and the broader question of what purposes knowledge serves.

At the same time, simulations are challenging in their planning, preparation and organisation; they require a great deal of commitment from students and educators alike. Most importantly, reflection and discussion after the simulation are crucial components to the success of a simulation. Students need to be given the opportunity to discuss their thoughts, reflections and even feelings during the simulation. Equally, interactions with lecturers and feedback during the simulation play an important part in making the simulation an instructive experience.

Why Simulate a Global Zombie Outbreak, When There are so many “Real” Problems in the World?

With the above considerations in mind, the question remains why a global zombie outbreak would constitute a reasonable “case” for a classroom simulation in IR. One could argue that there are indeed more pressing issues in world politics that could offer an interesting simulation background; e.g. the current power relations in the UN Security Council after the Arab Uprisings have brought the tensions in this institution into sharp relief.

And yet the discussion on what constitutes an object worth of study (and by implication therefore also of simulation) in International Relations has broadened significantly in recent years. In a ground-breaking volume, Weldes has shown how popular culture and International Relations interact and mutually constitute each other in the field of Science Fiction (Weldes 2003). Focusing on the relation between pop culture and international relations more broadly, Grayson, Davies, and Philpott establish popular culture as “an important site where power, ideology and identity are constituted, produced and/or materialised” (Grayson et al. 2009:256). At the same time, merely adding pop culture and stirring will not lead to fundamentally challenging core assumptions in orthodox International Relations.

International Relations as a discipline is characterised by a number of theoretical perspectives and debates that render it necessary to focus on abstract and conceptual discussions, rather than mainly paying attention to recent developments. In this context, much of the discussion of how particular theoretical perspectives would explain particular developments actually already takes on a nature of hypothetical reasoning and modelling (for instance with regard to very deductive and parsimonious theories such as Realist strands of IR). In this context, quite a few IR scholars have recently started to engage with the question of how their IR theories would deal with a zombie outbreak as structural development in world politics. The question of how the world would respond is here seen as scenario in which to apply existing theoretical perspectives, as Dan Drezner elaborates in some detail in his 2011 book (Drezner 2011). A structural realist for instance would argue that, because of the uneven distribution of capabilities, some governments will be better placed to repulse the zombies than others, but that, fundamentally, the anarchical character of world politics would not be changed. From a liberal institutionalist perspective, the zombie issue would cross borders and affect all states, so the benefits from policy coordination would be pretty massive, for instance in setting up a World Zombie Organisation (WZO). Also, regional coordination would form a possible solution - Drezner would e.g. expect the European Union to

issue one mother of an EU Directive to cope with the issue, and handle questions of zombie comitology. Constructivists might posit that, to paraphrase Wendt, the zombie problem is what we make of it, i.e. that there are a number of possible norms emerging in response to zombies (e.g. the Hobbesian version of survival vs a Kantian “anti-Zombie world society”). Nexon on the other hand, would see changes brought on by a global zombie outbreak as leading to profound transformations in the current order, but in ways consistent with hegemonic-order theory, which sees the rise and fall of dominant powers as the most common pattern in world politics - with the reassertion of US power as key outcome (Nexon 2010).

However, by firmly remaining *within* the dominant theoretical perspectives,² introducing zombies as object of world politics in this way does not particularly invite students to go beyond established hierarchies in IR, and to question perceived wisdoms (which they have been introduced to by the lecturers and their textbooks). As Saunders points out, for instance, current zombie literature breaks with some of the core assumptions of orthodox IR: “on both the international and the societal levels, [Max Brook's *World War Z*, LH] rejects the notion that technological superiority guarantees security, thus taking aim at a central notion of contemporary geopolitical thought” (Saunders 2012:96; citing Brooks 2006). Lawson argues in a forcefully sceptical take that the use of popular culture and fiction in IR teaching should rather facilitate “questioning taken-for-granted assumptions about world politics; transgressing existing boundaries; and opening up the discipline to utopian and dystopian thinking, counterfactual analysis, and cultural encounters which otherwise go unproblematized” (Lawson 2011; see also Yadav 2011).

Ultimately, simulating a global zombie outbreak will always remain a case of *IR ad absurdum*, of course. The main objective of our simulation was well captured in an explanation offered in an academic volume exploring perspectives on zombies in various scientific disciplines:

Why bother? For the same reason we do lots of intellectual exercises: it strengthens our mental muscles. When we explore the consequences of fictional ideas, we become better at thinking through the implications of a hypothesis. If we can answer the “what if?” question Romero poses, then we might become better at answering some of the questions reality throws at us (Smith 2001:6-7).

² Drezner refuses to engage with theoretical perspectives such as, e.g., Feminism and Marxism on the rather thin grounds that “Marxists and feminists would likely sympathise more with the zombies” (Drezner 2011:16).

The challenge for a successful and instructive zombie simulation hence lies in addressing core questions of International Relations, and social science more broadly, in an innovative, playful and stimulating way, but at the same time with sufficient theoretical underpinning and focus on academic supervision.

Outline of the Simulation

The planning of the simulation, broadly, revolved around the practical organization of the students into groups with the aim of moving beyond, though inspired by, a Model UN exercise. The event took the form of a one-day simulation which had been announced to the students at the beginning of the semester, yet without disclosing detailed information. Participation was voluntary, around 5-7 students had to leave the event half-way through because of work commitments. Prior to the simulation exercise, the students were organised into groups reflecting different real-world international political actors. Out of a class of ca. 80 students, 65 students participated in the simulation. With 15-17 groups (with some added later on in the simulation), and around three to four students in each group, the actors they represented ranged from states to transnational organizations, such as the Arab League, the Russian Mafia, Halliburton, Shell, Amnesty International and the Vatican, to name a few.³ For the students to get as much out of the simulation as they could, they were assigned to compile basic background information on their actors a few days before the simulation took place. For this, they were encouraged to use the CIA world Fact Book, The Economist Country Reports, and other easily accessible sources. As for zombie culture, the students were encouraged to read zombie literature, such as *World War Z*, and watch zombie films and TV shows, such as *The Walking Dead*.⁴ Moreover, and importantly, at this point in the semester, they had only been introduced to the three dominant theories of IR: (1) (Neo-)realism; (2) (Neo-)liberalism; and (3) Constructivism.

The simulation was planned around a seven hours program with two blocs. The first bloc consisted of explaining the rules and expectations, the students meeting in their groups, and the students interacting with the other actor-groups via twitter to react to and condition the then current state of

³ We would be happy to share the detailed set-up for the simulation with anyone who is interested in conducting a similar simulation exercise, please contact the authors for further information.

⁴ The Romero movies: *Night of the Living Dead* (1968), *Dawn of the Dead* (1978), *Day of the Dead* (1985) and the remakes *Dawn of the Dead* (2004), *Land of the Dead* (2005), *Day of the Dead* (2008); *The Walking Dead* (TV Series, 2010-2014, based on a graphic novel); *The Last Man on Earth* (1964 version, NOT - *I am Legend* (2007) with Will Smith), also the novel on which this film is based: *I am Legend* by Richard Matheson; *28 Days Later* (2002) (and the sequel *28 Weeks Later* (2007)).

world politics. During the second bloc, after the students were given a summary of the first bloc and state of world politics, the groups then met for another round of meetings and Twitter interactions. After this last meeting session, the students were then presented with the final outcomes of the actors, and how the politico-structural, and to an extent the geographical, terrain of world politics had been affected.

The instructors had several roles during the simulation. Initially, the instructors were assigned a number of groups to supervise. Supervision included helping guide the students in relating what they wanted to pursue to the International Relations theories that the students had been discussing in class, as well as clarification of the particular theories. Along with keeping the students discussing at an academic level, the supervisors were responsible for making sure the groups followed the key parameters.

The simulation was set around several key parameters (mostly based on the “authoritative” WWZ), with parameter “2” changing late in the course of the simulation: (1) The zombie outbreak is global and almost simultaneous; (2) zombies are slow without significant intelligence; (3) zombies are not stopped by water, though they do freeze; (4) supervisors will be in contact for zombie arbitration; (5) the use of social media, particularly Twitter, is explicitly permitted.

To give a real-time component to the exercise, the media platform Twitter was used, with each actor having an account, and given the opportunity to post political ambitions, responses, courses of action, and so on. These posts and inter-actions were then fed via the Twitter live-feed. Here the groups could watch the discussions and courses of action of their own actors as well as the other actors on their computers as well as large projection screen in the main auditorium. Twitter also served to separate the groups from each other and limit face-to-face communication, which would possibly be a realistic matter in a real-world apocalyptic scenario. The Twitter account also provided us with an opportunity to document the international relationships, and the groups’ conditioning of world-politics for later review and reflection.

This use of twitter turned out to be a successful addition to the more standard group-based simulation set-up. With over 502 tweets in just 4 ½ hours,⁵ students made good and most importantly very creative use of this form of communication; the “master account” can be accessed as #IrandZombiesRUC.

⁵ Use of twitter was embargoed at the beginning and end of each group session to ensure that students would discuss their own strategy before engage with other groups

We did not set goals for the simulation as such – the different actors were not told to pursue a “winning strategy” or follow specific objectives. The question of which course of action to take was left completely open during the first bloc. All we asked the students was to start acting/tweeting, and at the end of the first bloc to relate their actions to the three dominant IR theories introduced in previous lectures in a short written synopsis. In the second bloc we told them to pick one of the three theories and just run with it. Again, they were not asked to pursue specific objectives, but in this case they were directed to act on the basis of a self-selected cognitive framework. The reason we did this was to leave the simulation open and completely anarchical, giving the students the freedom to act as they saw fit and let the simulation develop in whichever direction they chose. Moreover, we did not want to bias them unnecessarily towards interest-maximizing theories, such as realism and liberalism, by framing the exercise in terms of goals to be reached. Rather, after around two-thirds of the simulation, we introduced an additional dimension to the simulation – zombies acquiring consciousness, and becoming organised so they constituted another actor. The new ‘zombie group’ was mainly led by our tutors, to help reshuffle the negotiations but also to give attention to how concepts like ‘logic of appropriateness’ relate to actors that most players would not consider rational in the first place.

A sceptical outsider might object at this point and argue that a zombie-outbreak, as conceived in some parts of popular culture, would necessarily lead to the collapse of civilisation and thus the states system, as we know it. Seen from this perspective, a simulation is useless since it will quickly run into the ground (or indeed the undead). Not so, according to our experience. Broadly speaking, there were no sweeping changes to international relations as a consequence of the introduction of the zombie pandemic. Sure, the purview of some international organisations, notably the WHO, Amnesty International and the Vatican (whether it can be classified as an IO is a tricky question), changed, and there was also the occasional war and change of state boundaries, but the states system survived in more or less its current form. The end result was in fact a negotiated settlement where a coalition of states agreed to give up Israel to the zombies in return for security guarantees.⁶ In other words, a “conventional” IR outcome. What about the learning outcomes? Was there anything novel to report here?

⁶ This outcome should be seen purely in the context of the simulation. On the one hand, prior to this suggestion, another group had proposed Madagascar as ‘storage location’ for zombies – the historical dimension here is clear, of course, and was also problematised immediately within the group discussion. At the same time, involving Israel in the resolution of the simulation also suggests a clear reference to *World War Z*, where Israel plays a prominent role due to its security measures such as the West Bank Barrier, and general high defense levels.

Contagious IR Teaching or Slow Shuffle? Results of the Student Survey

We thought it imperative that a systematic assessment of the simulation was conducted, and that such assessment extended beyond a narrow evaluation of how well the simulation itself was actually executed. Reflections on simulations are too often caught up in details of how the simulation was conducted with a surprising lack of empirical evidence of its actual usefulness (Frederking 2005:385-93; Raymon and Sorensen 2008:179-82). Thus we wanted to make sure that due attention was paid to determining the simulation's academic potential.

Concretely, we wanted to address three main questions. The first – and most important – question related to whether the students actually gained academically from the simulation. Secondly, we wanted to test for any gender-bias in the zombie-simulation. Some might raise the objection that a zombie attack would resonate more with male students, and that female students would gain less from this type of simulation. Thirdly, we wanted to come up with some indicative answers as to why the zombie-simulation might constitute a beneficial pedagogical tool. Ample empirical evidence exists documenting the positive pedagogical effects of simulations in political science teaching in general (Asal and Blake 2006:1-8; Frederking 2005; Starkey and Black 2001:537-51; Shellman and Turan 2007:19-32; Taylor 2013:1-16). Such evidence, while important, was not sufficient to remove what we considered the elephant in the room: what's so great about a *Zombie*-simulation? What can the reliance of pop-cultural references bring to the teaching environment? Our evaluations indicate that injecting pop-cultural references (zombies in this case) into the simulation could activate other – often more visual and emotional – associations in the mind-set of students compared to more traditional simulations.

In order to shed light on the three questions posed above, we presented the students with two surveys: one survey immediately prior to the simulation and another survey just after the simulation. The methodological rationale was that instead of just relying on retrospective questions (as in Shellman & Turan's 2007 learning evaluation of their IR simulation) we would compare responses to similar questions before and after the simulation. By juxtaposing the answers prior to the simulation with the answers provided after the simulation, we hoped to ascertain more robust results with regards the simulation's academic impact. Both surveys were generated and answered anonymously online in *SurveyMonkey*.⁷ The vast majority of the participating students answered the questions; 57 students took the survey immediately before the simulation, while 45 students

⁷ The actual surveys can be acquired by contacting the authors.

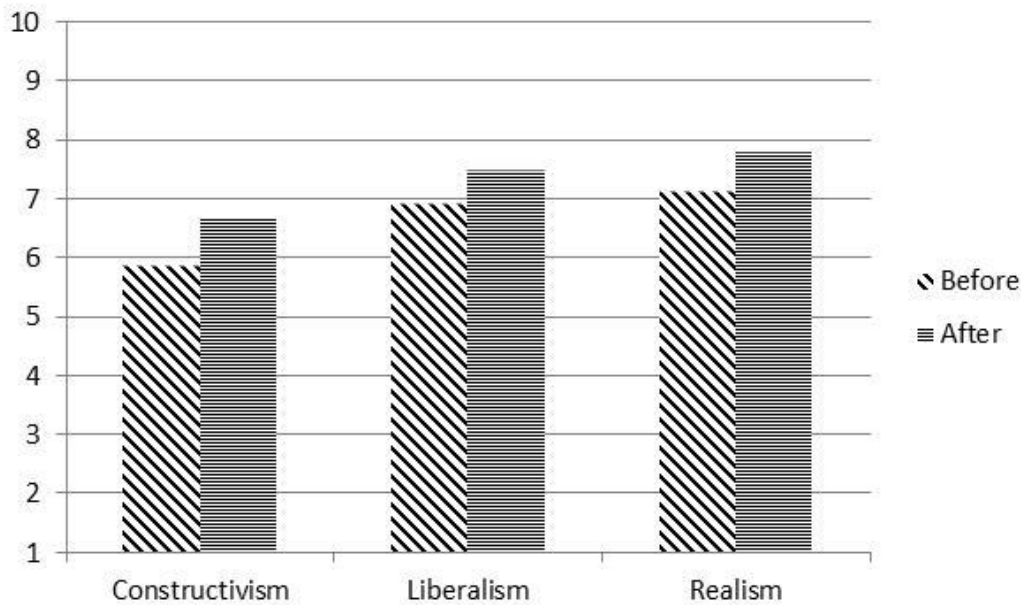
filled in the survey right after the simulation had taken place. The results of the surveys will be presented in the following.

Was There an Academic Pay-off?

Ultimately, simulations are conducted because they serve an academic purpose. Well-designed simulations can foster deep learning by increasing the students' ability to connect and synthesize knowledge (Asal and Blake 2006:2). Simulations provide opportunities to learn from first-hand experience boosting the students' problem-solving and application skills. The strength of simulations lies not primarily with improvements of the theoretical vocabulary and understanding, but with improvements of critical thinking and moral reasoning – what has been referred to as deep learning (Starkey and Black 2001:537; Shellman and Turan 2007:21-22; Taylor 2013:4). The problem with that type of learning is that it is exceedingly difficult to capture such impacts in surveys. Not only due to the lack of a control-group that has not been subject to the simulation (Frederking's 2005 study is a noticeable exception) but also because the expected academic benefits of the simulation – the experimental first-hand learning – is hard to capture in surveys that to a large extent is restricted to testing knowledge through multiple choice questions (See also, Powner and Allendoerfer 2008:75-89).

Hence, we chose to rely on a before/after-design based on the students' self-assessment of their familiarity/knowledge of mainstream IR-theories. Prior to the simulation, we asked the students to rate from a scale of 1 (least) to 10 (most) how comfortable/familiar they were with the three mainstream IR-theories they had been taught in the month leading up to the simulation: (1) (Neo)-realism; (2) (Neo)-liberalism; and (3) Constructivism. After the simulation we asked them to do precisely the same. The result showed significant improvements across the board. The students' knowledge within each of the three dominant strands of IR had increased substantially after the simulation (see figure 1). Self-proclaimed familiarity/knowledge of (neo-)realism went up from an average of 7.2 before the simulation to 7.8 after (significant at the 6 % level); (neo-)liberalism went up from 6.9 to 7.5 (significant at the 8 % level); and familiarity with constructivism went up from 5.9 to 6.7 (significant at the 2 % level).

Figure 1: Students' self-evaluation of familiarity with mainstream IR-theories (1: least to 10: most) before and after the simulation

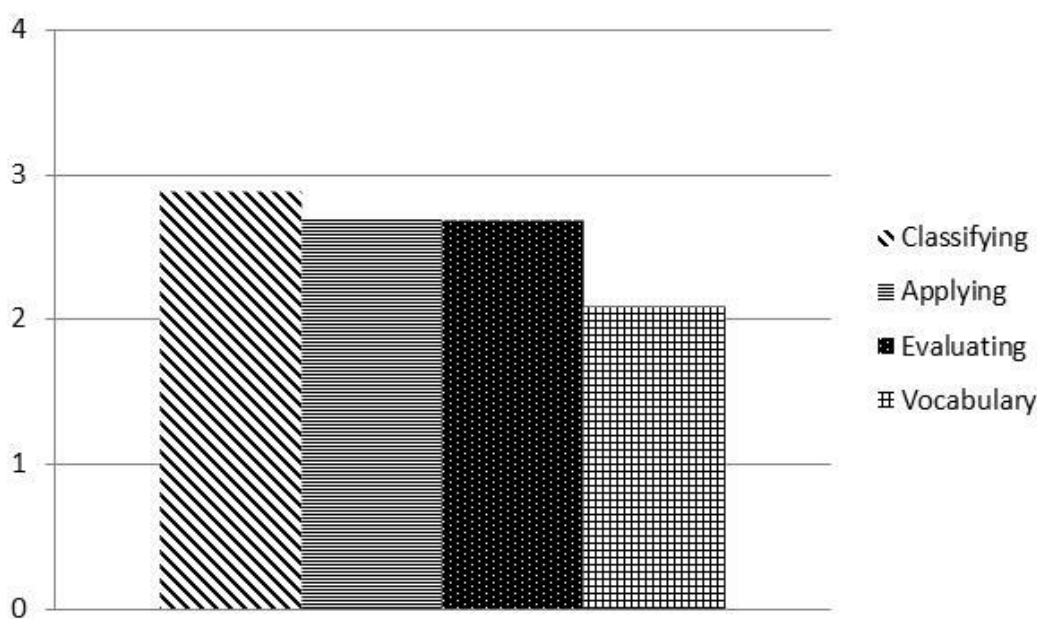


Next, we decomposed the self-reported increase in IR-knowledge. For each of three major IP-strands we compared the frequency distribution of the answers before the simulation to the distribution after the simulation. The frequency distributions indicated that the significant increase in familiarity was mainly the result of having elevated the students with the lowest a priori knowledge of the IR-theories. In other words, the data suggests that the simulation spurred the greatest improvements among the weakest students. This is hardly surprising. Existing research of simulations has pointed to their adeptness at reaching precisely those students that have been difficult to reach in traditional lectures (Shellman and Turan 2007:20). The fact that the increase mainly took place among the students with the lowest a priori knowledge of IR can also be used to reject a potential bias in the responses: students might report higher familiarity after the simulation simply because they feel that is what is expected of them. If such a dynamic indeed was prevalent, the increase in familiarity would be fairly uniform across all students; this is not the case with this simulation.

We were also interested to learn just how the students felt their familiarity had improved. Thus, we asked them retrospectively to consider to what extent the simulation had improved (0: no improvement; 4: much improvement) (1) their capacity to apply the IR-theories to a given empirical problem; (2) their ability to classify and categorize IR-theories; (3) their ability to critically evaluate the theories; and (4) their vocabulary of IR (see figure 2). The median response to the two former questions was 3 while the median response for the two latter questions was 2 indicating that the

students primarily felt that the simulation had increased their capacity for classifying theories and for applying them to a given empirical problem. Improving the vocabulary was clearly the dimension that received the lowest self-reported improvements with an average of just 2.1. The results are broadly in accordance with existing literature emphasizing these learning patterns (Taylor 2013; Starkey and Black 2001).

Figure 2: Students' evaluation of the extent to which the simulation had improved their ability in four key areas (0: no improvement; 4 much improvement).



Legend: Classifying: improvement in their ability to classify and categorize IR-theories; Applying: improvements in their capacity to apply the IR-theories to a given empirical problem; Evaluating: improvements in their ability to critically evaluate the theories; Vocabulary: improvements of their vocabulary of IR.

Finally, we asked the students for a more traditional and retrospective evaluation of the simulation but with a clear comparative dimension. We asked if they agreed or disagreed with the following four statements: (1) the simulation was a complete waste of time; (2) the simulation was fun but I would have benefitted more academically by a normal lecture; (3) the simulation provided me with some useful insights that would be difficult to achieve in a traditional class setting; (4) the idea of a simulation was good - but the whole Zombie context made it harder for me to relate to. None of the students rated the simulation as a complete waste of time. 85 percent of the students disagreed with the statement that they would have benefitted more from a traditional lecture. 95 percent

agreed that the simulation provided them with some useful insights that would be difficult to achieve in a traditional class setting. 22 percent of the students thought the idea of a simulation was good but that the Zombie thing threw them off a bit. These responses indicate that even students with extensive a priori knowledge of IR (where it was hard to document a knowledge increase) agreed that the simulation provided them with useful insights that they would not have gained in a traditional class setting.

Higher Order Learning?

One aspect that does not seem to have been addressed by any other previous studies is whether simulations change students' perceptions of what a theory is supposed to do, i.e. how they evaluate whether a theory is useful? The learning impact of simulations is conventionally conceptualized as falling into three discrete categories: (1) content learning; (2) theoretical learning; and (3) experiential learning (Taylor 2013:5-6). To simplify a little, the first is about the learning of basic facts. The second is concerned with how a theory works, including its scientific foundation, the relationship between different parts, typologies and general claims. The third refers to the ability to apply theories and general knowledge to *do* something; in other words, to be able to marshal the resources of 1 and 2 to solve or analyse a specific problem. However, we will argue that usefulness, or the broader question of "what is knowledge for?", is not covered meaningfully by either of these categories and actually involves an even higher order of learning or reflection.

Within the discipline of IR, there is a vibrant debate about the status of scientific knowledge and the cognitive goals of the field as such. Some time ago, Hollis and Smith introduced the distinction between "explaining" and "understanding" (Hollis and Smith 1991). The former was meant to capture the cognitive goals of positivists: discovering general patterns and perhaps even formulate these into scientific laws as in the natural sciences. This they also termed the "outside" story. The latter, "understanding", referred to the cognitive goal of knowing something in all its complexity from the "inside", a largely humanistic project. Their core contention was that there were always these two distinct stories to tell and research in International Relations, even if they often overlapped in concrete cases (Hollis and Smith 1991). More recently, Patrick Jackson has proposed a fourfold typology of what he calls "the conduct of inquiry in international relations" (Jackson 2011). Through this, he elaborates the cognitive goals of neopositivism, critical realism, analyticism and reflexivity. The latter encompasses the goals of poststructuralism and critical theory and thus the principle of being critical of knowledge production in itself.

How did we try to capture this aspect of learning/reflection in the survey? First, we asked the students what they considered the most important principle of an IR-theory and gave them four options: 1) the theory's ability to predict events; 2) the theory's ability to understand events; 3) the theory's ability to account for the complexity of events; and 4) the theory's ability to provide strategies for what to do in a given situation. Arguably, these questions did not cover the reflexivity/critical theory cognitive goal, which might be something to look in to in the future. We have to emphasize that the intention was *not* to measure how well the students had understood the philosophy of science positions they had been exposed to in the course. Rather, the objective was to see whether a simulation impacts basic preferences with respect to how students evaluate theories – what it is that makes them attractive.

What we found was that the largest group of students, both before (39 percent) and after (37 percent) the simulation, preferred the cognitive goal of being given strategies for what to do in a given situation. However, 25 percent chose the understanding option and 30 percent the complexity option before the simulation (both options scored 31 percent after the simulation). We cannot know, of course, exactly how the students interpreted these options, but the figures do suggest a majority preference for getting the full, deep picture of events (understanding and complexity). Very interestingly, only 7 percent preferred the prediction option before the simulation falling to 2 percent after.

What do the figures tell us? For starters, that the simulation did not really change aggregated preferences (we have not analysed the consistency ratio of individual preferences), as none of the changes were statistically significant. This can be interpreted in at least two ways: either this particular simulation was not designed in a way that was conducive to provide reflection on these issues or perhaps such preferences are very hard to change once formed. Our own experience from academia certainly indicates that scholars' basic philosophy of science positions or "wagers", to use Jackson's term, are seldom malleable (Jackson 2011). These are, in a sense, articles of belief. Second, it is very interesting that so few displayed a preference for prediction, the stable of positivist thought which arguably still occupies the dominant position in IR. Moreover, the related goal of parsimony appeared to be discarded as well as shown by the preference for understanding and complexity. Finally, over a third of students indicated a preference for problem-solving theory (guide to action), which should be a comfort to scholars doing normative theory. Apparently, there is a demand here. That said, there may be a bias to be aware of. The traditional ethos of Roskilde University has been to apply theory to solve real societal problems – social science that matters. It is considered an "activist" university of sorts in Denmark and students each semester write a group

project where this skill is honed. The natural question is whether a similar group of students would signal the same preference at a more traditional university?

Was there a difference between self-identified weak and strong students? We found that there was. Recall that students ranked their familiarity with theories on a 10-point scale. Using the cut-off point of 7 (the mean and median value), we identified a statistically significant difference in the answers provided by the strong students (over 7) and the weaker students (below 7): 33 percent and 36 percent of the stronger students believed that theories should be used to understand and account for the complexity of events compared to 16 and 19, respectively, for the weaker students. These weaker students, in turn, highlighted the need for theories to provide useful strategies (51 percent compared to 31). In short, it appears clear that weaker students preferred theory as a guide to action, more so than understanding or complexity. We performed a similar analysis with respect to gender, but here the differences were marginal and not statistically significant.

We also asked the students which of the three theories ((neo-)realism, (neo-)liberalism and constructivism) they found most useful when analysing a world-wide zombie pandemic. The somewhat surprising finding here, given the general non-preference for prediction and parsimony, was that 61 percent before and 64 percent after the simulation ranked (neo-)realism as the most useful theory. This could indicate a cognitive dissonance, but more likely a casual interpretation of the meaning of the word “understanding”. Our experience from participation in the actual simulation was that students generally found it useful to understand their own state/organisation as a self-regarding actor pursuing its interests in competition with other states/organisations. If this model equated with “understanding” in their minds, then perhaps the preference for (neo-)realism is less surprising.

The figures for (neo-)liberalism were 25 percent before and 20 percent after; for constructivism, 14 percent before and 16 percent after. In other words, the simulation did not significantly change the students’ evaluation of theories. Similar to the issue of philosophical wagers, this suggests that the simulation could not fundamentally alter concrete theoretical preferences. This could again be due to either the set-up of the simulation, inflexible theoretical beliefs or some other unknown reason.

The overall conclusion is therefore that the simulation did not contribute much to this form of learning or reflection, at least in so far as it did not change preferences. The possibility exists, of course, that it *did* provoke such reflection and that the students were simply strengthened in their basic beliefs. However, we have no way of knowing this based on the survey.

Was There a Gender Bias?

As previously noted, some might be concerned that this type of simulation would be gender-biased. Perhaps a zombie invasion (with all the violence and gore) might strike a chord more with male students than female students. One of the most important prerequisites for participating in the Zombie-simulation is to possess a basic knowledge of zombies.⁸ We therefore asked the students to specify their prior knowledge of zombies. Most students had gained knowledge about zombies from movies (86 percent); 38 percent of the students had watched a zombie TV-series, while only 19 percent had read a zombie book.⁹ One major finding was that all the surveyed students reported to have consumed some kind of zombie fiction. All of the students, in other words, had some prior knowledge of zombies. Another major finding was that indeed male students appeared to have significantly greater a priori knowledge of the zombie-universe compared to female students. Whereas most female students only relied on one source of zombie fiction (often movies), male students relied on a broader spectrum of zombie fiction (that would probably have been broader still had we queried about zombie computer/video-games).

The interesting question is, however, whether this statistically significant difference translated into differences in learning. Here the answer appears to be a resounding “no”. There were no significant gender differences in the self-reported increases of familiarity/knowledge of mainstream IR-theories. Although a statistically insignificant gender difference did materialize between male and female students in their self-assessment of knowledge – male students generally appeared to think they were more knowledgeable than their female counterparts both before and after the simulation – no gender differences could be observed in terms of knowledge *gains* from before to after the simulation. Despite the fact that female students appeared to gain equally from the simulation, there was a statistically significant difference when it came to the question of whether the zombie aspect of the simulation threw them a bit off: while only 13% of the male students felt that way, 26 % of female students provided that answer. This finding seems to corroborate our initial assumption that the affinity to zombie-related content is indeed slightly higher among male students. Since the learning effect did not show gender differences, however, we would maintain that the gender dimension of the simulation has been sufficiently taken into consideration. Moreover, participation in the simulation took place on a voluntary basis, hence if the zombie-component had been a major deterrent for participation of female students we should have seen a

8 Raymond & Sorensen (2008) provide a dire warning of what happens when the students have limited prior knowledge. The authors reported how the students limited knowledge of the Middle East hampered the gains from the Middle East Crisis Simulations

9 In retrospect, we should also have included a category of zombie knowledge from video/computer games.

significant discrepancy between male and female participants compared to the normal class composition, which was not the case.

What's so Special About the Living Dead?

Lastly, we wanted some insights into why a simulation based on a zombie invasion might be a beneficial pedagogical tool. There is a modest literature outlining the use of zombies in political science teaching. Derek Hall has described how to use zombie-movies when teaching comparative political economy, and Robert Blanton has described how to integrate the fictional book *World War Z* in an undergraduate IR-class (Hall 2011:1-13; Blanton 2013:1-13). These writings largely belong to the category of “how to” with little attention to documenting the effects of such zombie-based teaching. More importantly, they do not link the zombie universe with the pedagogical tool of simulations leaving that particular dynamic unaddressed.

In determining the value-added of a zombie-simulation, we took as a point of departure that indeed simulations have already proven their worth as a pedagogical tool. Thus, our working hypothesis was that the zombie dimension could inject some novel associations to the simulation of a more visual and emotional character. Introducing fictional situations into a simulation can be a way of avoiding pre-existing biases and perceptions as well as the path-dependency of history (Asal and Blake 2006:7). A zombie simulation, we believed, could achieve something more. Research has unequivocally documented that visualizations and emotions play a powerful role in the cognitive learning processes (Chaffer and Frasson 2005). We tested the students' associations with zombies compared to that of another well-known simulation topic, namely the UN. Prior to the simulation, we asked the students to choose from four categories of associations what first popped into their mind when they heard the word “zombie” and the word “the UN”, respectively. The four categories were: (1) visualizations; (2) descriptions; (3) feelings; and (4) reflections.¹⁰ 78 percent of the students had visual associations with the word “zombies” compared to just 14 percent of the students with respect to the word “the UN”. Instead, 43 percent of the students reflected on the strength and weaknesses of the UN, and 19 percent went through a mental description of the

10 Concretely, the choices with respect to the word “zombie” were: (i) a visualization of scary-looking decomposed bodies that move around limping and grunting; (ii) a description of the factual characteristics and functions of zombies; (iii) a feeling of insecurity, violence and gore; (iv) a reflection of the strengths and weaknesses of zombies in a modern, global world. With respect to the UN, the choices were: (i) a visualization of the UN-building, Ban Ki Moon or the peacekeeping forces ; (ii) a description of the factual characteristics and functions of the UN/Security Council; (iii) a feeling of security, connectedness and progress; (iv) a reflection of the UN's strengths and weaknesses in a modern, global world. The order was randomized.

factual characteristics of the UN. The second association the majority of students (54 percent) had with the word “zombies” related to feelings of insecurity/security. These different associations do not appear to be subject to gender bias. Of course, we are not neuroscientists; nor are we behavioural economists; it goes without saying that much more research has yet to be conducted in this field. But it does appear clear that using pop-cultural references opens up for other associations than do traditional IR-topics, and that these primarily visual and imaginative associations might be exploited to increase learning. This might be a fruitful venue for future pedagogical research.

Caveats with the Survey

Some caveats with the conducted surveys deserve mentioning. Filling in the survey was voluntary (as was the participation in the simulation itself), and the survey therefore had to be limited in scope. Fewer students filled in the survey after the simulation, which could be interpreted as a way of voting with their feet: students who hated the simulation might have left prior to the second survey thereby biasing the results. While this cannot be ruled out, our general impression was that the students left because they had other obligations (most notably jobs - common among Danish students). The students did not leave the simulation until the very end (between 3 and 5 pm), and they all expressed the view that they thought the simulation had been lots of fun. Another caveat is that the surveys can only suggest that the students gained from the simulation. This does not mean, of course, that they would not have gained even more had we spent the seven hours in another way; perhaps by a full-day marathon lecture. While this remains an open (and largely unanswerable) question, pedagogically it appears to make sense to diversify the teaching to also include more experimental and active learning. Here a zombie simulation appears to be an interesting option when teaching IR. The present analysis of the surveys tracked significant improvements in the students’ self-assessed theoretical knowledge/familiarity in particular among the weaker students – improvement that appeared gender-neutral, and that in some way might have benefitted from the visual, emotional and imaginative associations that zombies trigger in today’s society.

Concluding Reflections

There were several issues encountered during the simulation that would require further attention. One of these issues was the application of theory. The simulation took place after the first four lectures of the IR theory course: realism, liberalism, and constructivism (including an introduction lecture). The students, therefore, were most familiar with these theories, though would venture off

into other schools of thought, such as the critical and ethical perspectives, while being not so familiar with the latter. While the students were encouraged to think “outside” of the box and apply critical reflection, which can often be associated with the critical IR perspectives, the students were found lacking in their articulations when using these perspectives. While the pragmatism of realism perhaps won out with its applicability, as the student reflections showed, it is possible that the theoretical traditions not yet covered, could have been more applied had the simulation taken place at the end of the course, rather than the middle. In addition to these theoretical issues, the organisational challenges of running a successful simulation that proves accessible to all students should not be underestimated.

These critical comments notwithstanding, we do think that we have demonstrated the value of combining the zombie theme with an active learning exercise such as a simulation. We eagerly await reports of new attempts to do this. It would be especially interesting to investigate what happens if different scenarios are introduced into the simulation or if some of the basic parameters (including actor goals) are changed. Moreover, there is certainly also scope for improving the methods by which we gauge learning impact in an objective and reliable way. Our survey, while having some strengths, was based exclusively on subjective self-evaluation. So, please send the zombies roaming in your classroom!

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